UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1998-0792

August 19, 1998

Don Ostby
Forest Supervisor
Umpqua National Forest
2900 Stewart Parkway
Roseburg, Oregon 97470

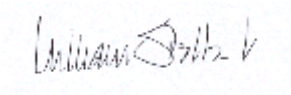
Re: Biological Opinion on the Stewart Mining Operation, City Creek Drainage, Steamboat Creek Watershed, Umpqua National Forest

Dear Mr. Ostby:

Attached is the National Marine Fisheries Service's (NMFS) Endangered Species Act (ESA) section 7 biological opinion on the proposed Stewart Mining Operation in the City Creek drainage in the Umpqua River Basin. The NMFS has determined that the action as proposed under Alternative 4 of the Final Environmental Impact Statement (FEIS) is likely to adversely modify or destroy designated critical habitat for Umpqua River cutthroat trout (*Onchorynchus clarki clarki)* and could jeopardize their continued existence. The NMFS believes that implementation of the reasonable and prudent alternative as coordinated with your staff and described in the opinion would avoid the likelihood of jeopardizing the continued existence of Umqua River cutthroat trout and adversely modifying or destroying their critical habitat.

If you have any specific questions please contact Ron Lindland at (503) 231-2315 or Steve Morris at (503) 231-2224.

Sincerely,



William Stelle, Jr.
Regional Administrator

Enclosure

cc: Tim LaMarr, North Umpqua Ranger District
Bruce Stewart

Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION

Stewart Mining Operation
City Creek Drainage, Steamboat Creek Watershed

Umpqua River Basin

Agency: Umpqua National Forest

Consultation
Conducted By: National Marine Fisheries Service
Northwest Region

Date Issued: August 19, 1998

Refer to: OSB1997-0792

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I. Background

Umpqua River (UR) cutthroat trout (*Onchorynchus clarki clarki*) was listed as endangered under the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS) on August 9, 1996 (61 FR 41514; August 9, 1996). This evolutionarily significant unit (ESU) includes anadromous, potamodromous, and resident cutthroat trout populations occurring below natural, impassable barriers in the Umpqua River Basin. The NMFS designated critical habitat for UR cutthroat trout on January 9, 1998 (63 FR 1388). Oregon coast (OC) coho salmon (*O. kisutch*) and OC steelhead trout (*O. mykiss*) were proposed for listing on July 25, 1995 (60 FR 38011) and August 9, 1996 (61 FR 41541), respectively. The OC coho salmon ESU was removed from the list of species proposed for listing and reclassified as a candidate species (May 6, 1997, 62 FR 24588). The OC steelhead ESU was also removed from the list of species proposed for listing and reclassified as a candidate species (March 19, 1998, 63 FR 13347).

A January 22, 1997, letter from the Umpqua National Forest (UNF) requesting formal consultation on UR cutthroat trout and conferencing on OC coho salmon and OC steelhead trout was received by NMFS on January 23, 1997. A draft Environmental Impact Statement (DEIS) accompanied the January 22, 1997 letter. On March 5, 1997, NMFS received the Final Environmental Impact Statement (FEIS) which described the potential effects of the Stewart Mining operation on UR cutthroat trout, OC coho salmon, and OC steelhead trout and their habitat. The FEIS will serve as the Biological Assessment (BA) for this project. The Level 1 team discussed the Stewart mining operation at an April 18, 1997 meeting in Roseburg, Oregon. The Level 1 team concluded that the proposed Stewart Mining operation (Alternative 4) was not consistent with Northwest Forest Plan (NFP) Aquatic Conservation Strategy (ACS) objectives. As per the February 26, 1997, memorandum on streamlining consultation procedures, “projects inconsistent with the appropriate management plans may not be a part of the streamlining process”. The UNF determined in the FEIS that the proposed action is "likely to adversely affect" (LAA) UR cutthroat trout and OC steelhead trout, but “not likely to adversely affect” (NLAA) OC coho salmon. The UNF also determined (page 75 of the FEIS) that implementation of Alternative 4 of the FEIS (the proposed action) “would likely retard attainment of Aquatic Conservation Strategy objectives at the scale of St. Peter and City Creeks.” These streams are 7th field and 6th field watersheds, respectively.

On August 13, 1997, NMFS provided a draft Reasonable and Prudent Alternative (RPA) for the proposed Stewart Mine action to the UNF. On September 24, 1997, NMFS provided a completed draft jeopardy biological opinion to the UNF. During the late-summer and fall of 1997, the UNF conducted additional on-site studies regarding slope stability and geotechnical engineering recommendations for the proposed construction of an extension to the 3828-176 road and upgrade of the 3828-160 road (Broda 1997a and 1997b). On January 27, 1998, the UNF provided a draft response to the draft RPA to the NMFS. On February 3, 1998, NMFS personnel met with UNF personnel and the applicants at the UNF Supervisor’s Office in Roseburg, Oregon to discuss the draft RPA and the UNF’s draft response to the draft RPA. On May 1, 1998, the UNF provided a finalized

response to the draft BO to the NMFS. On July 9, 1998, NMFS received an evaluation of consistency with the ACS for the proposed Stewart Mining Operation from the UNF.

The proposed Stewart gold mining operation (aka President's Mining Claims) is located in the City Creek watershed. City Creek is a tributary to Steamboat Creek which enters the North Umpqua River approximately 20 miles upstream from Glide, Oregon. The proposed operation is within the historic Bohemia Mining District. NMFS and UNF personnel visited the Stewart mining operation site on June 3, 1997.

The objective of this biological opinion is to determine whether the Stewart mining operation as proposed under Alternative 4 of the FEIS is likely to jeopardize the continued existence of UR cutthroat trout or result in the destruction or adverse modification of critical habitat. Since consultation or conferencing is not required by the ESA for candidate species, OC coho salmon and OC steelhead trout will not be addressed in this opinion.

II. Proposed Action

The "proposed action" is the implementation of Alternative 4 as described in the Stewart Mining Operation FEIS (USDA 1997a). The proposed action is a gold mining operation during which ore would be removed from existing underground adits, one new adit would be constructed (near existing El Capitan adit), and core samples would be collected along known ore veins. Implementation of Alternative 4 would disturb a total of 4.79 acres of land. Pages 16-18 of the FEIS list the activities which would be allowed by the UNF under Alternative 4. Proposed new road, cat road, all-terrain vehicle (ATV) trail, and foot trail construction activities include: 0.83 mile of new road extension off of existing 3828-176 road to access the upper claims(#12-#16)(420 feet of this extension would initially be an ATV trail); 0.6 mile of new "cat road" (off of existing 3828-160 road); 0.43 mile of new ATV trail, conversion of 0.72 mile of existing foot trail to ATV trail, and conversion of 0.13 mile of existing "cat road" to ATV trail; and 0.64 mile of new foot trail. Maintenance of existing roads and trails include: 0.23 mile of existing "cat road" and 3.65 miles of existing foot trails.

The proposed new road construction to access the upper claims (Ike, Enon, Ernest, Constant, and Jackass No. 1) from the existing 3828-176 road would include 0.8 mile of mid-slope construction across 40-70% slopes on Bohemia Mountain. A gate would be placed on this new road at its junction with the 3828-176 road to limit access.

The proposed new "cat road" construction would access the Martha Washington, Washington, and Lincoln claims (#24-26) from the existing 3828-160 road. This cat road would not cross or enter the riparian area of any streams. Access to the 3828-160 road is currently limited by a locked gate.

Under Alternative 4, a culvert capable of passing a 100 year storm event would be installed in the El Capitan Creek crossing of the 3828-160 road on the Coolidge Mill claim (#7). In addition, the width of the fill at this crossing would be reduced by 15-20 feet to pull back currently unstable material perched

over El Capitan Creek. The fill would be armored with riprap. Additional measures to decrease risk of sedimentation and improve maintenance on the 3828-160 road are listed in Mitigation Measure #29 in the FEIS.

In addition to road, cat road, ATV trail, and foot trail construction and maintenance, the following activities are proposed under Alternative 4:

- Upgrading corners and brushing claim lines on all 27 unpatented claims.
- Opening, widening, and adding timbers to existing adits and discovery cuts on all claims.
- Sampling along existing and known ore veins using a core drill.
- Rebuild a gate on the lower access road (3828-160) and install a gate at the beginning of the extension of the 3828-176 road.
- Install a 4-foot spring box on the Jefferson claim
- Removal of an existing “dam” on St. Peter Creek at the Ford Mill site. The “dam” is a small (approximately 24" long by 18" high) wooden structure in the mainstem of St. Peter Creek (Debra Anderson, Interdisciplinary Team Leader for Stewart Mine EIS, pers. comm., May 12, 1997).
- Install a portable 1000 gallon water tank for domestic use on the Harding claim
- Excavation of a new adit across El Capitan Creek from the existing El Capitan adit on the Coolidge claim.
- Transporting and milling approximately 12,600 cubic yards of ore and waste rock from adits and existing waste rock dumps. Claimants estimate that the majority of material would come from the Coolidge (9500 cubic yards), Ike (1000), Jackass (700), Jefferson (700), Enon (500), and Jackson (200) claims. This material would be transported by dump truck from areas accessible by road or by ATV from areas accessible only by ATV trail. The portable mill site is proposed to be located on private land on the Victor patented claim site. The ore would be crushed at the mill site, and transported off-site for further processing. Therefore, no toxic chemicals commonly used to extract gold from ore would be required at the mill site. However, diesel fuel, oil, antifreeze, and hydraulic fluids would be needed to operate the trucks, ATVs, and ore crushing machinery.
- Harvesting up to 45 MBF of timber for use in reinforcing adits, portals, and stopes. The UNF anticipates that much of the timber needed will be harvested as individual trees throughout the

claims area (USDA 1997a). No trees would be harvested from riparian reserves. No trees greater than 20 inches DBH would be harvested.

An April 25, 1997, memorandum from Don Ostby, Umpqua National Forest Supervisor, to the Level I Team provided some clarification regarding implementation of Alternative 4. According to the memorandum, the Record of Decision (ROD) for the Stewart Mine project will require decommissioning of approximately two miles of existing roads within the City Creek watershed. In addition, installation of a permanent sluice box in St. Peter Creek on the Patton's Hell Hole claim (#6) will not be approved in the current Plan of Operations (POO).

The UNF requires copies of all necessary state and federal excavation and discharge permits prior to approval of the POO. The POO, once approved, would be valid for five years; unless violations of the stipulations listed in the POO or other requirements for maintaining a valid POO occur, in which case it could be revoked.

III. Biological Information and Critical Habitat

The listing status and biological information for UR cutthroat trout are described in Attachment 1. Critical habitat was designated for UR cutthroat trout on January 9, 1998 (63 FR 1388). The proposed action is within and upstream from the area designated as critical habitat for UR cutthroat trout.

UR cutthroat trout are found throughout the City Creek drainage. Both spawning and rearing habitat for UR cutthroat trout occur within the City Creek watershed. The City Creek drainage is currently functioning as an aquatic refuge area relative to other drainages in the upper portion of the Steamboat Creek watershed (USDA 1998). More specifically, UR cutthroat trout have been verified (snorkeling by UNF fisheries personnel) to occur throughout the lower 1.5 miles of St. Peter Creek (USDA 1997a). A 1995 stream survey of St. Peter Creek conducted by UNF personnel found that "the lower 0.8 mile currently provides high quality habitat for Umpqua cutthroat trout" (USDA 1996, Appendix B).

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA, as defined by 50 CFR Part 402 of the implementing regulations. The NMFS must separately determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. Each analysis has the following initial steps in common: (1) Define the biological requirements of the listed species (see Attachment 1); and (2) evaluate the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1)

collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed species life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify any reasonable and prudent alternatives to a proposed or continuing action.

Subsequent to the first two steps, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS than considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

The NMFS concluded in a March 18, 1997 biological opinion that implementation of the UNF LRMP, as amended by the NFP, is not likely to jeopardize the continued existence of UR cutthroat trout. Implementation of actions consistent with ACS objectives described in the NFP will minimize the effects of those actions and result in improved habitat conditions for UR cutthroat trout. Improved habitat conditions will result in increased survival of the freshwater life-stages of UR cutthroat trout. Therefore, actions on the UNF that comply with NFP standards and guidelines and do not prevent or retard attainment of ACS objectives are not likely to jeopardize UR cutthroat trout or adversely modify their designated critical habitat.

In summary, for spawning and rearing habitat, NMFS' jeopardy analysis considers direct or indirect mortality of UR cutthroat trout attributable to the proposed action. The NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for productive spawning and rearing of UR cutthroat trout.

A. Biological Requirements

For this consultation, NMFS finds that the biological requirements of UR cutthroat trout are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the ESUs. Individual environmental factors include water quality, habitat access, physical habitat elements, channel condition, and hydrology. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of UR cutthroat trout. This information is summarized in
Attachment 1.

B. Environmental Baseline

Current range-wide status of ESU under environmental baseline.
The NMFS described the current population status of the UR cutthroat trout in its status review (Johnson et al. 1994) and in the final rule (August 9, 1996, 61 FR 41514).

Action Area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The "action area" for this consultation, therefore, includes St. Peter Creek and its tributaries (Bohemia Creek and El Capitan Creek), City Creek and its tributaries within the boundaries of the Stewart Mining project area and the mainstems of St. Peter Creek and City Creek downstream to the mouth of City Creek at its confluence with Steamboat Creek. St. Peter Creek is a tributary to City Creek and City Creek is a tributary to Steamboat Creek. Ninety-two percent of the City Creek watershed is managed by the UNF.

The entire Upper Steamboat Creek watershed, of which the City Creek drainage is a part, lies within Late Successional Reserve (LSR) and Tier-1 Key Watershed as designated under the Northwest Forest Plan (NFP). An LSR Assessment has been completed for this area (LSR 222) and approved by the Regional Ecosystem Office (REO)(USDA and USDI 1998). Key Watersheds serve as refugia and are "crucial for maintaining and recovering habitat for at-risk stock of anadromous salmonids and resident fish species"(USDA and USDI 1994). Fisheries resources were also identified as an Outstandingly Remarkable Value in the eligibility determination of Steamboat Creek for Wild and Scenic River status (USDA 1997b).

Mining activities began in the headwaters of City Creek in the 1860s and have continued periodically to the present. Since World War II, mining in the area has gradually declined due mostly to unfavorable economic conditions. According to the City Creek watershed analysis (USDA 1996), historic mining activities appear to have influenced the spatial distribution, frequency, and intensity of landslide occurrences within the upper reaches of the St. Peter Creek and City Creek drainages.

Landslide History

Landslide density in the City Creek watershed averages 13.4 per square mile, with 23 percent of the slides associated with land management activities (roads, mine waste dumps, or timber harvest units). More specifically, in the St. Peter Creek drainage landslide density averages 25 per square mile (USDA 1996). By comparison, landslide densities found in other major tributaries to Upper Steamboat Creek were 1.6 per square mile in Horse Heaven Creek and 0.3 per square mile in Little Rock Creek (USDA 1997a). Of the landslides associated with roads throughout the watershed, 57% of them have occurred on the 27% of the road miles in high risk terrain. Past road construction on high risk terrain has accelerated landslide rates in the City Creek watershed (USDA 1996).

The landslide history of the City Creek watershed indicates that landslides often become debris flows in this watershed. Debris flow scour was detectable on aerial photos in 22 miles of approximately 45 miles of stream in the City Creek watershed. Aquatic habitat conditions in St. Peter Creek have been heavily influenced by its debris flow history. The channel in the upper 2.3 miles of St. Peter Creek is severely scoured out and the habitat is generally highly simplified; lacking pools, large wood, and gravel substrates. Hydrologic characteristics of the City Creek watershed (steep gradient and low angles of convergence) often allow debris flows to continue unimpeded into higher-order drainages. Aquatic habitat in the lower 0.8 mile of St. Peter Creek has undergone substantial recovery from past debris flows and is highly complex (USDA 1996).

Aquatic Habitat Conditions

The UNF conducted stream habitat surveys using the Forest Service Region 6 level II and modified Pfankuch channel condition methodologies on streams in the City Creek watershed between 1991 and 1996. Existing aquatic habitat in the City Creek drainage ranges from being in "good" condition to "poor" condition. Habitats have been previously impacted by sediment delivery and channel alteration generated from historic landslides and debris flows and from current management activities. The surveys found that habitat in the lower 0.8 mile of St. Peter Creek is highly complex. Large wood is abundant and log jams have formed resulting in high quality habitat features such as plunge pools, areas of gravel deposition, and side channel development.

Water temperatures recorded near the mouth of City Creek by a continuously recording thermograph exceeded 64/F (17.8/C) on only three days between June 1 and September 13, 1995. The maximum water temperature reached 65/F (18.3/C) on July 27 and 28 and August 5 during 1995 (USDA 1996). Water temperature data is not available for St. Peter Creek.

Water quality testing associated with other mining activity in the vicinity of the proposed Stewart Mining operation has indicated that mine discharge waters have met Oregon state drinking water standards for pH, conductivity, alkalinity, and heavy metals (USDA 1996). Aquatic macroinvertebrate monitoring has been conducted in lower City Creek since 1989. Water quality does not appear to be limiting the aquatic macroinvertebrate community in City Creek (USDA 1997a citing Wisseman 1995).

Due to the steep gradient channel, sediment routing in mainstem City Creek is rapid. Fine sediment deposition (embeddedness) is not currently a problem in St. Peter Creek or City Creek (USDA 1996).

Current status of ESU under environmental baseline within the action area.

The current population status and trends for UR cutthroat trout are discussed in Attachment 1. Winchester Dam counts are currently the best quantitative measure of UR cutthroat trout abundance in the Umpqua River basin (see Table 1 of Attachment 1).

According to USDA (1996), there are approximately 7.2 miles of UR cutthroat trout habitat in the City Creek watershed, and the presence of UR cutthroat trout has been verified in the lower 1.5 miles of St. Peter Creek. A natural waterfall in St. Peter Creek just downstream from the existing 3828-160 road crossing is a complete barrier to upstream fish migration. St. Peter Creek and its tributaries upstream from this waterfall are outside of designated critical habitat for UR cutthroat trout. Except for the El Capitan adit on the Coolidge Lode claim, proposed mining and road building activity would occur upstream from the impassable waterfall on St. Peter Creek or outside riparian reserve areas in claims downstream from the waterfall; and, therefore outside of UR cutthroat trout designated critical habitat.

Environmental baseline conditions within the action area were evaluated for the subject action at the project site and watershed scales. This evaluation was based on the "matrix pathways and indicators" described in "Making Endangered Species Act Effects Determinations for Individual or Grouped Actions at the Watershed Scale' (NMFS 1996). This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.
Application of this assessment methodology at the scale of St. Peter (7th field) and City Creeks (6th field) reveals that 10 of the 17 relevant habitat quality indicators in the action area streams are currently rated as "properly functioning". Indicators which are rated as "properly functioning" are: temperature, sediment and turbidity, habitat access, off channel habitat, streambank condition, floodplain connectivity, change in peak/base flows, drainage network, disturbance history and riparian reserves. Current water quality conditions in City Creek contribute to a healthy aquatic ecosystem (USDA 1997a).Current water quality conditions in City Creek contribute to a healthy aquatic ecosystem (USDA 1997a).

Application of this assessment methodology at the watershed scale of Steamboat Creek (5th field) reveals that 7 of the 17 relevant habitat quality indicators in the action area streams are currently rated as " not properly functioning". Indicators which are rated as "not properly functioning" are: temperature, water chemistry, large woody material, width/depth ratio, road density, disturbance history and landslide rates (USDA 1998).

V. Analysis of Effects

A. Effects of Proposed Action. The effects determination in the BA was made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of the action on them. This process is described in the document "Making ESA Determinations at the Watershed Scale" (NMFS 1996). This assessment method was designed for the purpose of providing adequate information in a tabular form in BAs for NMFS to determine the effects of actions subject to consultation. The effects of the action are expressed in terms of the expected effect (restore, maintain, degrade) on each of approximately 17 aquatic habitat factors in the project area, as described in the "checklist for documenting environmental baseline and effects of the action" (checklist) completed for each action. The results of the completed checklist for the action provides a starting point for determining the overall effect of the action on the environmental baseline in the project area. At the

project scale, implementation of Alternative 4 has the potential to increase sediment transport to and turbidity in streams. Activities associated with this alternative could also adversely affect stream substrate, pool quality, channel condition, drainage network, and landslide rates at the scale of St. Peter and City Creeks.

The NMFS evaluates the effects of ongoing and proposed actions using the three requirements described in Attachment 1. These requirements are: (1) the essential components of the Northwest Forest Plan (NFP), including Aquatic Conservation Strategy (ACS) objectives, watershed analysis, restoration, land allocations, and standards and guidelines, will be fully applied at the four spatial scales of implementation (region, province, watershed, and site or project); (2) that all management actions will comply with all applicable land allocations and standards and guidelines; (3) and that all actions will promote attainment of the ACS objectives.

Sediment and Turbidity

Construction and maintenance of roads and ATV trails and other ground disturbing activities have the potential to increase sediment transport to and turbidity in streams within the action area. Implementation of Alternative 4 would disturb approximately 4.79 acres of land. High turbidity can affect salmonids by preventing feeding, delaying spawning migrations, or forcing fish to leave habitats altogether (Bjornn and Reiser 1991). Deposition of fine sediment in stream substrates degrades salmonid spawning and rearing habitat (Chapman and McLeod 1987, Bjornn and Reiser 1991). Fine sediment deposition in stream gravel and in pools impairs salmonid spawning, rearing, and over-wintering habitat (Chapman and McLeod 1987). As sediment becomes deposited in interstitial spaces, rearing habitat for juvenile salmonids is also reduced. Bjornn et al. (1977) found reductions in carrying capacity during summer and winter as percent cobble embeddedness increased.

Slope gradient throughout much of the City Creek watershed typically averages between 50 and 70 percent (USDA 1997a). Alternative 4 proposes construction of 0.8 mile of new road (extension of Forest Road 3828-176) across moderate and high risk landslide terrain along the face of Bohemia Mountain. If a landslide does occur off this road, past history and recent stream surveys indicate there is a high risk of the landslide becoming a debris flow. A debris flow would result in adverse impacts to the aquatic habitat in St. Peter Creek and possibly to UR cutthroat critical habitat downstream. The proposed road construction (extension of the 3828-176 road) would be located outside UR cutthroat critical habitat approximately 0.6 mile upstream from the impassable natural waterfall on St. Peter Creek. The detrimental effects of debris flows include drastic alteration of the physical profile of the stream channel such as loss of riparian canopy, large-scale movement and redistribution of sediment bedload and large wood, damming and obstruction of channels, and accelerated stream bank erosion and lateral undercutting causing additional mass-wasting (Murphy and Meehan 1991).

Debris flows can adversely effect UR cutthroat trout spawning and rearing habitat. Debris flows which enter streams can, in some instances, result in the scouring out of stream substrate (spawning gravel) down to bedrock. Material contained in debris flows can fill in pools which are important as UR

cutthroat rearing habitat. Redistribution of stream substrate and large woody debris contained in debris flows can also create pools and increase stream habitat complexity, thus improving UR cutthroat trout spawning and rearing habitat over the long term (Swanston 1991).

Under Alternative 4, there is a high risk of increased turbidity during fall, winter, spring, and early summer due to proposed mining activities on the Coolidge Lode claim (#27); specifically from the existing El Capitan adit. An intermittent spring drains directly from the El Capitan adit into El Capitan Creek which is a tributary to St. Peter Creek. El Capitan Creek enters St. Peter Creek downstream from the impassable natural waterfall and, therefore, is within UR cutthroat critical habitat. Underground mine operations (stoping) within the adit is likely to create turbidity in the outflow due to the presence of clay seams and fine sediment associated with the mineralized portion of the vein structure. In addition, proposed drilling operations requiring the use of water could create turbid water outflow from the adit during any time of year. This spring is dry or nearly dry for at least a portion of the summer (generally July 1-September 30). Other adits to be worked are located such that any drainage from them is not expected to reach streams.

Other potential sources of sediment to streams could result from the construction and maintenance of cat roads, ATV trails and foot trails. A short segment (approximately 200 feet) of an existing cat road on the Ford Mill claim is within the riparian reserve of St. Peter Creek upstream from the waterfall. This road segment will be decommissioned, after installation of a water tank. Sediment from ATV and foot trail is, however, expected to be minimal because (with the exception of one foot trail crossing of a small tributary to St. Peter Creek) all ATV trails and foot trails are outside riparian reserves.

In summary, landslides and surface erosion from road, ATV trail, and foot trail construction and from mining activity in the El Capitan adit are all potential sources of sediment to streams in the action area. Even though the proposed new road construction (extension of the 3828-176 road) would occur upstream from the impassable natural waterfall on St. Peter Creek (just downstream from the 3828-160 road crossing) and thus is outside UR cutthroat trout designated critical habitat, sediment potentially generated from this activity would adversely affect UR cutthroat trout designated critical habitat downstream from the waterfall in St. Peter Creek and City Creek. El Capitan Creek which could be impacted by turbid water outflow from the El Capitan adit, enters St. Peter Creek downstream from the impassable waterfall within UR cutthroat trout designated critical habitat. Stream habitat parameters which could be degraded by increased sediment transport to sections of St. Peter Creek and City Creek which are designated as critical habitat for UR cutthroat trout are: water quality (sediment and turbidity), substrate, pool character, and width-to-depth ratio. As mentioned in the Environmental Baseline (Section IV.B) above, water quality (sediment and turbidity) in St. Peter and City creeks is currently considered to be in a "properly functioning" condition. Substrate , pool character, and width-to-depth ratio are rated as "at risk".

Acid Mine Drainage

The risk of acid mine drainage (AMD) affecting water quality in St. Peter Creek or City Creek is expected to be low (USDA 1997a). Water quality sampling in streams associated with other mining operations within the Steamboat Creek watershed (to which City Creek is a tributary) has indicated that Oregon state drinking water standards are being met (see Table 10 of USDA 1997a). However, if underground workings at the Stewart mining operation are eventually extended several hundred feet further back into the hillslope, the likelihood of intercepting sulfide-rich mineralization increases dramatically (USDA 1996). This is not expected to occur under the Plan of Operations described in Alternative 4.

The potential for AMD developing at any locations within the Stewart Mining operation is partially contingent upon the depth and degree of future underground development. At present, all underground workings within the area of the Stewart Mining operation are relatively shallow and mostly within the near-surface influence of oxidation. To date, ore mined from these claims has contained calcite and carbonate which tend to buffer pH levels.

Acid mine drainage can cause increased solubility of heavy metals. Heavy metals potentially introduced into streams from AMD are arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, and zinc (Nelson et al. 1991). Past water sampling in streams associated with other mining operations within the watershed have found that heavy metal concentrations meet Oregon state water quality standards. Because the risk of AMD entering streams in the action area is expected to be low, NMFS believes that the potential for adverse effects on UR cutthroat trout from AMD is also low.

Removal of Small "Dam" at Ford Mill Site

Because of the very small size of the dam (approximately 24" long by 18" high) on St. Peter Creek and because it is located upstream from the natural impassable waterfall (outside critical habitat), its removal is not expected to adversely impact the stream channel or substrate downstream.

Re-opening and Removal of Ore from Existing Adits

Other than at the existing El Capitan adit, the re-opening and removal of ore from existing adits and historic waste rock piles is not expected to adversely impact streams in the action area. Because of their distance from streams or location with respect to existing roads, adits (other than the existing El Capitan adit) are located such that soil disturbance associated with their re-opening and exploration is not expected to result in sediment transport to streams. All adits (other than El Capitan) and historic tailings areas which will be re-opened or explored and from which ore may be removed are located outside riparian reserves. Therefore, NMFS expects that effects on UR cutthroat trout or their habitat from adits other than the existing El Capitan adit will be minimal.

Existing Roads

On the June 3, 1997 site visit to the Stewart Mining operation, NMFS and UNF personnel viewed one location where a debris avalanche which originated several hundred feet upslope from the 3828-160 road in a small tributary to St. Peter Creek had flowed over the road, plugged the existing culvert, and continued on down the stream below the road. This debris avalanche resulted in the deposition of a large quantity of rock and some woody debris in the small stream channel downstream from the road crossing. Another significant washout of the road bed had occurred where the road fords St. Peter Creek. Minor erosion was observed at several other stream crossings on the 3828-160 road.

Coarse rocky material (0.5-2 inches in diameter) is currently being introduced into St. Peter Creek from the crossing of the existing 3828-160 road. This material has sloughed off the safety berm along the edge of the road and entered the creek. The material has filled in portions of pool habitats for approximately 0.25 mile downstream. These safety berms are required by the Occupational Safety and Health Administration (OSHA) for mining activities and are beyond the purview of the Northwest Forest Plan ACS objectives.

Effects of Interrelated/Interdependent Activities

The ESA and its implementing regulations (50 CFR Part 402.02) define "effects of the action" to include activities beyond those being permitted by the UNF, if they are interrelated or interdependent. The proposed ore milling site is located on private land (the patented Victor claim). The proposed road construction to access the upper claims, also accesses 20 acres of private timber land located on the patented Arlington claim.

Although harvest of timber from this land is not part of the proposed action, it is reasonably certain to occur once access is provided by the proposed new road.

The site where ore will be milled is located on a flat area outside riparian reserves on private land on the Victor patented claim. Because the site is located outside riparian reserves, the risk of turbid water reaching streams from the mill site and waste dump area is expected to be low (USDA 1997a). Ore would be crushed at the site and hauled off-site for further processing. Therefore, no toxic chemicals used in ore processing would be hauled to or stored at the site. Diesel fuel, oil, antifreeze, and hydraulic fluids would be used to operate machinery at the site. However, NMFS believes that required precautionary measures (Management Requirements #15 and #16 on page 24 of FEIS) are adequate to minimize the likelihood of these substances reaching streams.

The proposed new road across the base of Bohemia Mountain (from the existing 3828-176 road) would also provide access to approximately 20 acres of private land on the Arlington patented claim. This land is currently forested but would likely be logged within a few years after the road is constructed. Approximately two-thirds of this private parcel is located within "high risk" landslide terrain while most of the remainder is located within "moderate risk" landslide terrain. Logging of this land could further increase the risk of landslides and debris flows (USDA 1997a). The potential effects of landslides and debris flows on aquatic habitat are discussed above. Future timber harvest on the

patented (private) Arlington claim, if it does occur, would be subject to Oregon Forest Practices Act rules which are currently being revised under the Oregon Plan (Coastal Salmon Restoration Initiative) to provide additional protection for salmonids and the aquatic environment. The 20-acre parcel of timber on the patented Arlington claim (private land) is located approximately one stream mile upstream from the impassable natural waterfall on St. Peter Creek; and is, therefore, outside UR cutthroat designated critical habitat. There is a small perennial (possibly intermittent) non-fish bearing stream located in the southwest corner of the claim. If the timber is harvested on this parcel, approximately 500 feet of this stream would have Oregon Forest Practices Act riparian buffers (10 feet on each side of stream). Because of the location of the timber parcel in relation to UR cutthroat critical habitat and because of the type of stream and the small portion of that stream which would be effected by timber harvest, NMFS believes that implementation of Oregon Department of Forestry (ODF) "Forest Practice Water Protection Rules, Divisions 24 and 57" (1994) or the ODF regulations which are in effect at the time the timber is harvested would sufficiently reduce the potential for adverse effects to UR cutthroat trout or their designated critical habitat downstream.

B. Cumulative Effects. "Cumulative effects" are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area for this consultation includes St. Peter Creek and its tributaries (Bohemia Creek and El Capitan Creek), City Creek and its tributaries within the boundaries of the Stewart Mining project area and the mainstems of St. Peter Creek and City Creek downstream to the mouth of City Creek at its confluence with Steamboat Creek. The UNF identified no specific private or state actions that are reasonably certain to occur in the future that would affect UR cutthroat trout or their habitat within the action area. Since the UNF manages ninety-two percent of the land within the City Creek watershed, Federal actions are more likely to dominate stream conditions than where private ownership is substantial.

Significant improvement in UR cutthroat trout reproductive success outside of UNF land is unlikely without changes in agricultural, forestry, and other practices occurring within these non-Federal riparian areas in the Umpqua River Basin. Now that the species is listed as endangered and critical habitat has been proposed, NMFS assumes that non-Federal land owners will take steps to curtail or avoid land management practices that would result in the take of UR cutthroat trout. For actions on non-Federal lands which the landowner or administering non-Federal agency believes are likely to result in adverse effects to UR cutthroat trout or their habitat, the landowner or agency should work with NMFS to obtain the appropriate section 10 incidental take permit, which requires submission of a habitat conservation plan. If a take permit is requested, NMFS would likely seek project modifications to avoid or minimize adverse effects and taking of listed fish. Until improvements in non-Federal land management practices are actually implemented, NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

C. Consistency With NFP ACS Objectives and Watershed Analyses

Currently, NMFS applies the three criteria described in Attachment 2 for determining whether proposed actions would jeopardize the continued existence of listed UR cutthroat trout. These criteria are: (1) essential components of Land and Resource Management Plans (LRMPs), including ACS objectives, watershed analysis, restoration, land allocations, and standards and guidelines, will be fully applied at the four spatial scales of implementation (region, province, watershed, and site or project); (2) management actions will comply with all applicable land allocations and standards and guidelines; and, (3) management actions will promote attainment of the ACS objectives.

The action analyzed in this biological opinion (implementation of Alternative 4 as described in the Stewart Mining Operation FEIS and its effects on UR cutthroat trout and designated critical habitat) is not consistent with NFP ACS objectives 3, 4, and 5. The ACS objectives are listed in Table 1 of Attachment 2 of this Opinion.

Implementation of Alternative 4 would not be consistent with ACS objectives #3 and #5, because activities associated with that alternative (e.g. proposed extension of the 3828-176 road, potential for plugging of inadequate culverts on the existing 3828-160 road, etc.) may increase sediment inputs to St. Peter Creek and tributaries upstream from the waterfalls (outside critical habitat) and to a lesser extent within UR cutthroat trout critical habitat downstream from the waterfalls. Given the high rate of debris flows in the City Creek watershed, any activities that exacerbate landslide rates have a high risk of creating debris flows. Debris flows scour out stream channels, alter streambed substrate and large wood regimes, and often simplify aquatic habitats.

The proposed action is not consistent with ACS objective #4, because increases in turbidity are likely due to mining activities on the Coolidge Lode claim (#27) at the existing El Capitan adit. Without the installation of a sediment control system for water outflow from the El Capitan adit, mining activity within the adit could result in turbidity increases in El Capitan Creek and St. Peter Creek downstream which would exceed the range of natural variability.

Activities associated with the Stewart Mining operation, as proposed in Alterative 4 of the FEIS, are inconsistent with recommendations in the City Creek Watershed Analysis (USDA 1996) and the Upper Steamboat Creek Watershed Analysis (USDA 1997). The City Creek watershed analysis recommends several roads in the area of the Stewart mining operation as high priority for decommissioning or storm proofing. These include Forest Road 3828 and spurs 135, 136, 145, 150, and 160 of the 3828 road. The Upper Steamboat Creek Watershed Analysis (USDA 1997) further refines the City Creek analysis by finding that the 3828 road and the 160 spur road would require a high degree of stormproofing; the 135 and 136 spurs a low degree of storm proofing; the 145 spur be left as is; and the 150 spur be decommissioned. The existing 3828-160 spur would be used as a haul route for ore from the El Capitan adit.

The City Creek watershed analysis also recommends that the UR cutthroat trout bearing stream reaches and their riparian reserves in the City Creek watershed be studied for withdrawal from mineral entry. The Upper Steamboat Creek Watershed Analysis (which includes City Creek) recommends "withdrawing all fish bearing streams and their respective riparian reserves in the Bohemia Mining District (within Upper Steamboat Creek watershed) from mineral entry in order to reduce impacts to the endangered Umpqua cutthroat trout". In NMFS' March 18, 1997 biological opinion on the effects of implementation of LRMPs on listed, proposed, and candidate Pacific salmonids, Reasonable and Prudent Measure #3 and its terms and conditions require that stronghold areas (of which the Steamboat Creek watershed may be one)be identified and evaluated for potential withdrawal from future mining development. This process is included as a Conservation Recommendation in Section VIII below.

VI. Conclusion

Implementation of the Stewart Mining Operation under Alternative 4 considered in this Biological Opinion, as described in the BA (FEIS), is likely to jeopardize the continued existence of UR cutthroat trout. The NMFS used the best available scientific and commercial data to apply its jeopardy analysis (described in Attachment 2), when analyzing the effects of the proposed action on the population status and biological requirements of the species relative to the environmental baseline (described in Attachment 1), together with cumulative effects.

This conclusion was reached primarily because implementation of Alternative 4, as described in the BA (FEIS) would likely retard attainment of ACS objectives 3, 4, and 5 as described in Section V.C. above. For the reasons why this action would be inconsistent with the ACS, it is NMFS' opinion that the proposed action will appreciably reduce the likelihood of both survival and recovery of the UR cutthroat trout. The primary concern is increased sediment transport to streams as a result of ground disturbance (road construction) and increased potential for landslides or debris flows resulting from proposed road construction in steep, landslide prone terrain.

The proposed action is also likely to adversely modify essential features of UR cutthroat trout critical habitat by increasing the potential for landslides and debris flows in St. Peter Creek and City Creek which would result in increased sediment transport to those streams. Increased sedimentation in streams would adversely modify spawning and rearing habitat for UR cutthroat trout.

VII. Reasonable and Prudent Alternative

The regulations implementing section 7 of the ESA (50 CFR 402.2) define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that (1) can be implemented in a manner consistent with the intended purpose of the action, (2) can be implemented consistent with the scope of the action agency's legal authority, (3) are economically and technologically feasible, and (4) would, NMFS believes, avoid the likelihood of jeopardizing the continued existence of listed species and avert the destruction or adverse modification of critical habitat.

The NMFS believes the reasonable and prudent alternative described below can be taken by the UNF and the applicant (operator) to avoid the likelihood of jeopardizing the continued existence of UR cutthroat trout and adversely modifying or destroying UR cutthroat trout critical habitat. This alternative would modify the proposed Stewart mining operation as follows:

1. To reduce the risk of landslides and sediment transport to streams in and downstream from the Stewart Mining operation area the operator shall:

a. Change the location of the first 1000 feet of the proposed new road (extending from the existing 3828-176 road to the Jackass #1 claim) from the initial location proposed in Alternative 4 of the FEIS such that the road segment between stations 6+50 and 9+00 is located as near the ridgetop as possible, within the limits of safe road grades and proper road drainage. If this section of the road cannot be located on the ridgetop, or if ridgetop location is found infeasible because of excessive (unsafe) road grades or road drainage concerns, then the UNF will conduct additional investigations and slope stability analyses as part of the road design process. If, as a result of these additional analyses, a stable location (minimum cutslope Factor of Safety for this segment of the road of at least 1.35, as determined by use of the XSTABL Integrated Slope Stability Analysis Computer Model) cannot be found for the proposed road then the UNF would reinitiate consultation with NMFS. The XSTABL Model is the accepted site specific slope stability model used by geotechnical engineers throughout the Forest Service (Sharma 1992). The UNF will provide NMFS with a large scale topographic map and other appropriate road design and slope stability analysis information describing the adjustments made in road location and final design prior to construction of the proposed road extension. The March 18, 1997 LRMP/RMP Biological Opinion (Term and Condition 8.b.) requires that new permanent roads be limited to stable areas or ridgetops. Implement all design recommendations listed in the October 22, 1997, document "Engineering Design Recommendations for Construction and Upgrade of Transportation System Roads 3828-160 & 3828-176--Stewart Mining Operation".

b. Maintain existing and implement additional sediment control measures on the existing Lincoln/Washington and Ford Mill/Harding cat roads. Maintain existing waterbars on the Lincoln/Washington cat road. Install waterbars (at approximately 100-foot intervals) along the Ford Mill/Harding cat road, and decommission this cat road once the proposed water tank has been placed. Revegetate all cat roads prior to the rainy season and between extended periods of non-use.

c. Underground mining operations at the existing El Capitan adit shall not occur during periods when there is an outflow of water from the adit, until such time that a sediment control system (settling tanks or other sediment removal measures), which meets National Pollutant Discharge Elimination System (NPDES) permit and Clean Water Act standards, has been developed by the claimants, approved by the USFS and NMFS, and installed for the outflow from the El Capitan adit. Any outflow of water from the El Capitan adit during mining operations shall pass

through the approved sediment control system near the entrance to the adit before discharge near or into stream channels. Exploration work in the adit may occur during the dry season (July 1 to September 30) prior to installation of the sediment control system, provided that there is no outflow of water from the adit. Any sediment or other material collected in the sediment control system will be disposed of in a manner approved by the USFS and NMFS. The applicants would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Oregon Department of Environmental Quality (ODEQ) which would require protection of aquatic habitat from turbidity increases.

2. To offset the sediment impacts expected to result from road, ATV trail, and foot trail construction and other ground disturbing activities the UNF or the operator shall:

a. Decommission approximately 2 miles of road within the City Creek watershed. Road mileage to be decommissioned would be selected from road segments listed in Appendix M Table 1 (City Creek) of the Upper Steamboat Creek Watershed Analysis (USDA 1997b) as having "High" or "Moderate" Aquatic Impact Rating.

3. The UNF or the operator shall improve all stream crossings on the 3828-160 road to pass 100 year storm events and meet standards and guidelines for roads in riparian reserves (ROD, pages C-32 and C-33)

4. The UNF or the operator shall complete all ATV trail construction, foot trail construction, ore sampling, adit excavations, water tank installation, timber harvest, and snow shed construction for the selected Alternative as described in the ROD for the Stewart Mining Operation.

5. If the timber located on the patented Arlington claim (private land) is harvested in the future, the operator shall comply with all regulations listed in the Oregon Department of Forestry "Forest Practice Water Protection Rules, Divisions 24 and 57" (September 1, 1994) or ODF regulations which are in effect when the timber harvest occurs.

For the following reasons, NMFS believes the reasonable and prudent alternative described above would avoid the likelihood of jeopardizing the continued existence of UR cutthroat trout and adversely modifying or destroying UR cutthroat trout critical habitat: 1) changing the location of the first 1000 feet of the proposed extension of the 3828-176 road from that proposed in Alternative 4 of the FEIS such that the road segment between stations 6+50 and 9+00 is located on the ridgetop or in a stable location (as determined by the XSTABL Model) as near as practicable to the ridgetop would significantly reduce the risk of landslides or potential debris flows which could result from this proposed road construction; 2) adjustment of the proposed road location would also bring this permanent road construction into compliance with Term and Condition 8.b. of NMFS' March 18, 1997 LRMP/RMP Biological Opinion which requires that construction of new permanent roads be limited to stable areas or ridgetops; 3) implementation of additional sediment control measures (installation of waterbars, revegetation, etc.) on existing cat roads would minimize sediment impacts from these roads; 4) delaying

commencement of underground mining operations at the existing El Capitan adit, during times when there is an outflow of water from the adit, until such time that a sediment control system (settling tanks), which meets National Pollutant Discharge Elimination System (NPDES) permit and Clean Water Act standards, has been developed by the claimants, approved by the USFS and NMFS, and installed for outflow from the El Capitan adit will eliminate the potential of turbid water entering El Capitan Creek from this adit; 5) decommissioning of the specified road segments is expected to offset sediment generated by road and ATV trail construction and other ground disturbing activities; 6) upgrading of all stream crossings on the 3828-160 road would reduce the risk of increased sedimentation in streams which can result when inadequately sized culverts become plugged or overflow; and 7) implementing of Oregon Department of Forestry (ODF) "Forest Practice Water Protection Rules, Divisions 24 and 57" (1994) or the ODF regulations which are in effect at the time the timber is harvested on the Arlington claim (private land) would minimize the potential for adverse effects to UR cutthroat trout or their designated critical habitat downstream, because of the location of the timber parcel in relation to UR cutthroat critical habitat and because of the type of stream and the small portion of that stream which would be effected by the timber harvest. Implementation of the proposed action under this Reasonable and Prudent Alternative would likely restore or maintain rather than degrade habitat parameters discussed in Section V.A. above; and, therefore, would not likely prevent or retard attainment of ACS objectives at the appropriate (5th field) watershed scale.

The NMFS concurs with the UNF's determination in USDA (1998) that implementation of the proposed Stewart Mining Operation under Alternative 4, as amended by incorporation of the RPA expressed in this Opinion, is consistent with the objectives of the ACS at the 5th field watershed (Steamboat Creek) scale. Geotechnical analyses of slope stability indicates that the probability of a debris flow from the proposed 3838-176 road extension is low, and specific engineering standards and criteria incorporated in the road extension would further minimize the possibility of landslides or debris flows resulting from the road. As stated in USDA (1998), if debris flows do not occur sediment effects and effects on stream substrate in Steamboat Creek would not likely be measurable, the risk of the City Creek drainage losing its ability to serve as an aquatic refuge would be low, and the proposed road extension would not further increase the rate of landslide activity in the basin.

Because this biological opinion has found jeopardy, the UNF is required to notify NMFS of its final decision on the implementation of the reasonable and prudent alternative.

VIII. Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS has the following conservation recommendation regarding the action addressed in this Opinion:

The UNF should propose fish-bearing streams and their respective riparian reserves in the Bohemia Mining District (within Upper Steamboat Creek watershed) for withdrawal from mineral entry. Such a withdrawal would affect approximately 15 out of the 90 claims currently active in the Bohemia Mining District. If withdrawal is found to be feasible, the UNF should then complete the relevant administrative processes necessary to complete withdrawal.

IX. Reinitiation of Consultation

Reinitiation of consultation is required: (1) if the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Biological Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

X. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion in addition to the BA and additional information requested by NMFS and provided by the Roseburg BLM District.

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USDA Forest Service. 1996. City Creek Watershed Analysis. Umpqua National Forest. September 30, 1996.

USDA Forest Service. 1997a. Final Environmental Impact Statement for the Stewart Mining Operation. Umpqua National Forest.

USDA Forest Service. 1997b. Upper Steamboat Creek Watershed Analysis. North Umpqua Ranger District, Umpqua National Forest.

USDA Forest Service. 1998. Evaluation of Aquatic Conservation Strategy Consistency for the proposed Stewart Mining Operation. Umpqua National Forest. July 1.

USDA-FS and USDI-BLM (lead agencies). 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl; standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. April.

USDA-FS and USDI-BLM. 1998. South Cascades Late Successional Reserve Assessment. February.

XI. Incidental Take Statement

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

The measures described below are non-discretionary. They must be implemented by the action agency so that they become binding conditions necessary in order for the exemption in section 7(o)(2) to apply. The Umpqua National Forest has a continuing duty to regulate the activity covered in this incidental take statement. If the Umpqua National Forest (1) fails to adhere to the terms and conditions of the incidental take statement, and/or (2) fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

A. Amount or Extent of Take

The NMFS anticipates that the subject action covered by this biological opinion has more than a negligible likelihood of resulting in incidental take of UR cutthroat trout because of detrimental effects on aquatic habitat parameters including substrate quality, turbidity, suspended sediment levels, and pool character, all of which directly affect their life history. Because of the inherent biological characteristics of aquatic species such as UR cutthroat trout, however, the likelihood of discovering take attributable to these actions is very small. Effects of management actions such as the Stewart mining operation are largely unquantifiable in the short term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some incidental take to occur due to the action covered by this biological opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take of listed fish at any life stage.

Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the action covered by this biological opinion. To ensure protection for a species assigned an unquantifiable level of take, reinitiation of consultation is required: (1) if any action is

modified in a way that causes an effect on the listed species that was not previously considered in the BA and this biological opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16). This incidental take statement shall be in effect for the duration of the action covered by this biological opinion.

B. Effect of the Take

In this Biological Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to the listed species when the reasonable and prudent alternatives are implemented.

C. Reasonable and Prudent Measures

The NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of UR cutthroat trout resulting from the Stewart mining operation.

1. The UNF or the operator shall implement all mitigation measures and management requirements listed on pages 22-27 in the FEIS on the Stewart Mining operation which apply to the selected Alternative and which minimize or avoid potential effects of the subject action on UR cutthroat trout or their habitat.

2. The UNF or the operator shall monitor the effects of the Stewart Mining operation (as described on pages 28-29 of the FEIS) on water quality, water temperature, and substrate (sediment) in St. Peter Creek and City Creek in a consistent manner so that data may be compared between years and sample sites.

3. The UNF or the operator shall apply, where necessary, the Best Management Practices (BMPs) listed in Appendix B of the FEIS in order to comply with state requirements in accordance with the Clean Water Act.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Umpqua National Forest must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. The UNF shall do the following:

1. Implement mitigation measures 1-8, 11, 15, 16, 20-23, and 25-29 listed in the FEIS (USDA 1997a) as follows:

> a. Place all human sanitation facilities at least 170’ slope distance from any stream (outside of riparian reserves or as far away as possible from active stream channels) unless otherwise

approved by the Forest Service. All sewage facilities will be self-contained (i.e. vault-type toilets) to prevent sewage runoff or leaching into groundwater (Minerals Management S&G MM-3 [ROD page C-34], ACS Objective #4). Reclaim pit toilet located on Coolidge Mill Site.

b. Minimize width of ATV trails to meet Forest Service Safety Standards (no more than 5') to minimize sidecast, size of cutslopes, and area of ground disturbed. Minimize length of ATV trails in riparian reserves. (Roads Management S&G RF-2(f) [ROD page C-32], ACS Objectives #3 and 5).

c. Drainage dips and water bars would be installed on ATV trails and native surface roads including the existing 160 and 176 spurs in locations designated by the Forest Service. Generally, spacing will be every 70-125'. For cat roads with grades steeper than 15%, water bars will be at least 2' deep with excavated material forming berms (Roads Management S&G RM-5 [ROD page C-32], ACS Objective #5).

d. Aside from the 160 spur road, use of motorized equipment on native surface roads and ATV trails on public land (unpatented claims) is prohibited from October 15 - April 30 to prevent sediment releases to streams (Roads Management S&G RF-7(d) [ROD page C-33], ACS Objectives #4 and 6). Water bars would be installed on seasonally used cat roads and ATV trails by October 15.

e. If operator wishes to use the 160 and 176 spur for mining operations during the wet weather season, then these roads must be surfaced with aggregate by the operator as per Forest Service standards to reduce sedimentation into streams (Roads Management S&G RF-7(d) [ROD page C-33], ACS Objectives #4 and 6). No operations would be conducted if ground conditions are such that excessive damage would result to water quality.

f. With the exception of ATV trails, area of open ground disturbance would be limited to <0.5 acre during the wet weather season (Umpqua National Forest 1990 LRMP, Soils S&G #13, IV-71). All other areas disturbed prior to the wet weather season will have ground cover provided. Effective ground cover is considered to be all living or dead herbaceous or woody materials, synthetic materials, and rock fragments greater than three-fourths of an inch in diameter that is in contact with ground surface and considered to be stable and resistant to downslope movement (1990 LRMP, IV-68).

g. Cat roads, ATV trails, and foot trails will be seeded with Re-green or a Forest Service approved seed mixture immediately after construction and as needed to control erosion. Seeding will take place by the middle of September in the year of construction so as to provide effective ground cover prior to the wet weather season (October 15 - April 30), (Roads Management S&G RF-7(d) [ROD page C-33], ACS Objectives #4 and 6).

h. During road maintenance, ATV trail construction and foot trail construction and maintenance, some bucking of blow down trees is likely to occur. However, bucking of blow down trees in riparian areas is prohibited without permission from the Forest Service (Riparian Reserve S&Gs, ROD page C-31).

i. In future road construction, re-construction, or maintenance activities, refrain from sidecasting material unless otherwise approved by the Forest Service (Roads Management S&G RF-2(f), RF-4 [ROD pages C-32, 33], ACS Objectives #3 and 5). The purpose of this measure is to reduce sedimentation including the input of large angular rock into St. Peter Creek and to protect sensitive plant colonies.

j. Any stationary motorized equipment (i.e. generators, compressors) or storage containers would be placed within a non-permeable containment field with a capacity that exceeds the amount of hazardous materials (fuels, oils, antifreeze, etc.). Absorbent pads and containment booms would be kept on site. Contaminated soils would be removed as per Forest Service standards (ACS objective #4).

k. In the event of hazardous material spills (from either stationary or mobile equipment), spill containment materials would be deployed and the Forest Service would be contacted immediately. This measure applies most immediately to the proposed operation on the Coolidge Lode claim under all action alternatives (ACS objective #4).

l. The extension of the 3828-176 spur (Alt 4 as modified by the RPA) shall utilize full-bench type construction for road segments when sideslopes exceed 55%, and cut and layer placed fill construction on lesser slopes, except where other special design requirements are identified by the Forest Service. Sidecast construction of this road shall not be allowed. Excavation should be done with "excavators' instead of bulldozers to limit loss of excavated material below the road prism. Rock material shall be crushed to Forest Service requirements for road surfacing on the 176 spur. Any blasting for road construction would be done in a manner that minimizes the amount of material lost below the road prism.

m. The extension of the 3828-176 spur (Alt 4 as modified by the RPA) would be outsloped so as to allow drainage in as natural a manner as possible. Drain dips would be armored and their locations would be specified by the Forest Service. The average width of this road would be 10 feet.

n. The fill at the Coolidge Mill Site claim would be reduced in width by approximately 15-20 feet to pull back currently unstable material perched over El Capitan Creek, which is adjacent to El Capitan tunnel (Alt 4). A culvert capable of passing a 100 year storm event would be installed and the fill at this stream crossing would be armored with 9-24" riprap.

o. Operations would not be conducted when ground conditions (i.e. turbidity of road runoff) are such that excessive damage would result to water quality .

p. In-water operations would be conducted within the period of July 1-September 15 to meet Oregon Department of Fish and Wildlife standards (ODFW 1997).

q. Portable rubber water bars would be installed on the 3828-160 spur road on the approximately 150' length of road east of the El Capitan Creek stream crossing.

r. Some of the right-of-way logs (approximately 1/3) from the extension of the 176 spur would be placed downslope of the road in select sites prone to landslides (debris avalanches) as per recommendations in the City Creek watershed analysis. This measure would tend to reduce the distance any potential landslides would travel and/or would provide some large woody material to downstream areas in the event of a debris flow from any of these landslide-prone areas.

s. Mitigation measures associated with turbidity would be taken from the requirements set forth by the NPDES permit issued to the operator by the Oregon Department of Environmental Quality.

t. The following measures would be conducted on the 160 spur as per Forest Service specifications to decrease risk of sedimentation and improve road maintenance:

At first seep in cutslope (approximately Station 1570') - install 55' x 22' rock blanket to protect fill slope from erosion. Install 2-3 trench drains (1' deep @ 5% grade) to channel surface water flow from seep across the road. Space trenches downslope of seeps in cutslope;

At first stream crossing (approximately Station 1980') - replace existing 18" culvert with 24" "squashed" culvert (corrugated metal pipe); increase culvert gradient to 6-7%; install splash apron at culvert outlet to reduce erosive power of water;

At road fill failure (approximately Station 2270') - pull back failing fill and end-haul; install two drain dips to disperse surface water from seep in cutslope; install rock apron at grade sag;

At second major stream crossing (approximately Station 4669') - install additional 24" culvert placed beside existing 24" culvert ; accentuate drain dip at grade sag approximately 100' further down road (Station 4769');

At St. Peter Creek crossing (approximately Station 7565') - raise road grade on east side of crossing 1-1.5 feet to prevent stream diversion potential; maintain riprap at crossing.

2. The operator and the UNF shall monitor the effects of the Stewart Mining operation on streams within the action area as follows:

Responsibility of the Operator:

a. Monitor erosion and fine sediment delivery to streams by taking up to 10 print photos at points designated by the Forest Service. Photos would be taken on at least a monthly schedule to monitor ground condition at known locations, focusing on native surface roads and active mining locations. Photos would be taken during and after runoff conditions during months where wet weather conditions occur.

b. To ensure meeting the state water quality standard range of 6.5-8.5, monitor pH and conductivity weekly from May 1 - June 1, and from September 1 - November 15 of each year. Instruments used in pH monitoring shall meet any standards set forth by the Oregon Department of Environmental Quality in the NPDES permit for this project.

I. To monitor pH effects in St. Peter Creek, locate a "control" monitoring site at the upstream end of the Harding Claim. Locate the "test" monitoring site 100' downstream of the riparian adit in the Washington claim (alternatives 2 and 3) or below the Patton's Hell Hole claim (alternatives 4 and 5).

ii. To monitor for point source acid mine drainage, monitor at mine drainage location at base of El Capitan adit on the Coolidge Mill Site.

Criteria for instruments measuring pH and measuring procedures would include:

- instrument must be temperature-compensating
- accuracy must be within 0.1 pH units
- electrode must be suitable for low specific conductance
- low ionic strength standards must be used for calibration of instrument
- electrode must be allowed time to stabilize in sample before final reading is taken
- avoid stirring sample with electrode.

One potential option to ensure these standards are met would be for the proponent to contract out the pH sampling to an experienced contractor. This is not intended as a requirement, only as one option for ensuring collection of data that meet the above requirements.

c. Monitor heavy metal concentrations and pH in water column and streambed sediments as per USGS protocol standards. Monitoring should occur once every five years and should be done at the mouth of City Creek and in Upper Steamboat Creek above the confluence with Horse Heaven Creek.

Responsibility of the Forest Service:

a. Monitor streambed substrate composition using the "zigzag" pebble count methods documented in Bevenger and King (1995). The purpose of this monitoring will be to detect whether there is an increase in fine sediment in streambed substrate due to ground disturbance or influx of mine tailings. A test reach will be established in a depositional reach of lower St. Peter Creek. A control reach will be established somewhere outside the St. Peter Creek drainage in an area unaffected by mining activities. The Forest Service will conduct this monitoring every 3-5 years under all action alternatives.

b. Monitor the effectiveness of Regreen on foot and ATV trails and cat roads. Surveys will be conducted yearly to ensure that soil is being stabilized by this product.

Monitoring information shall be sent to:

National Marine Fisheries Service
Habitat Division (Attn. Elizabeth Gaar)
525 NE Oregon Street
Suite 500
Portland, OR 97232-2737

3. Implement BMPs for mining operations, reforestation/erosion control, control of operator activities, riparian areas within or adjacent to activity areas, road maintenance, road construction (drainage), road construction (stable embankments and waste areas), watershed restoration, and road decommissioning listed in Appendix B of the FEIS (USDA 1997a).